WHAT IS CLAIMED IS

1. A stereolithographic method of forming three-dimensional structure comprising:

a) ejecting drops of liquefied material in a sequence and allowing the drops to solidify to form a layer of a three-dimensional object;

b) surrounding the layer with a viscous liquid and controlling the level of the viscous liquid to be essentially level with the uppermost level of the portion of the layer formed from the drops of liquefied material;

c) ejecting drops of liquefied material in a sequence and allowing the drops to solidify and form another layer of the three-dimensional object;

d) raising the level of the viscous liquid to a level proximate the uppermost level of the newly formed layer; and

e) repeating steps c) and d).

2. A stereolithographic method as set forth in claim 1, further comprising using drops of first and second different materials to form the layers of the three-dimensional object.

3. A stereolithographic method as set forth in claim 2, wherein the second material has a melting point which is different from the melting point of the first material.

4. A stereolithographic method as set forth in claim 2, wherein the second material is used to form portions of the layers which define an external surface of the three-dimensional object.

5. A stereolithographic method as set forth in claim 4, wherein the second material has a melting point which is lower than the melting point of the first material.

6. A stereolithographic method as set forth in claim 5, further comprising the step of heating the three-dimensional object to a degree sufficient to soften the second material and induce it to flow into voids formed between solidified drops of the first material.

7. A stereolithographic method as set forth in claim 5, further comprising the step of heating the three-dimensional object to a degree sufficient to alloy the solidified drops of the first and second materials.

8. A stereolithographic method as set forth in claim 1, comprising:

using a UV setting resin as the liquefied material; and

irradiating the resin after each ejected drop has landed on the three-dimensional structure to induce hardening of the same.

9. A stereolithographic method as set forth in claim 2, comprising:

using a UV settable resin as the first material; and

irradiating each drop of the UV settable resin after it has landed on the three-dimensional structure to induce hardening thereof;

10. A stereolithographic method as set forth in claim 9, further comprising using a thermoplastic resin as the second material.

11. A stereolithographic method as set forth in claim 10, further comprising heating the thermoplastic resin so that if flows into the small voids between hardened drops of the UV settable resin.

12. A stereolithographic method as set forth in claim 9, further comprising using a metal as the second material.

13. A stereolithographic method as set forth in claim 12, further comprising heating the metal so that it softens and flows into the small voids between hardened drops of the UV settable resin.

14. A stereolithographic method as set forth in claim 1, further comprising using a surface of the viscous liquid as a surface onto which drops of liquefied material can be ejected and using the viscous liquid to support portions of the three-dimensional structure during its formation.

15. A stereolithographic method as set forth in claim 1, further comprising using the viscous liquid as an impregnation material which enters voids which are formed between solidified drops of the liquefied material.

16. A stereolithographic method as set forth in claim 15, wherein the step of using the viscous material as an impregnation material comprises removing excess viscous material from the three-dimensional structure.

17. A stereolithographic method as set forth in claim 15, wherein at least the viscous material which has entered the voids is induced to undergo a change by the application of an external stimulus.

18. An apparatus for forming a three-dimensional object comprising:

an ejector for ejecting drops of liquefied material into a vat;

a scanning device for moving the ejector in first and second mutually opposed directions to induce the drops of liquefied material ejected from the ejector to deposit and solidify to sequentially form layers of the three-dimensional object;

a viscous liquid supply for introducing viscous liquid into the vat to a level which is essentially level with the top of the layer of a most recently formed layer of the three-dimensional object and which raises the level of the viscous liquid each time a new layer is formed.

19. An apparatus as set forth in claim 18, further comprising an arrangement for maintaining a predetermined distance between a nozzle of the ejector and a level of the most recently formed layer of the three-dimensional object.

20. An apparatus as set forth in claim 18, wherein the ejector is adapted to eject drops of first and second different materials with a timing determined in accordance with the scanning of the ejector and so as to deposit the second material at portions of the layers of the three-dimensional object which define external surfaces of the three-dimensional object.

21. A method of forming a three-dimensional object comprising:

ejecting drops of liquefied material into a vat using an ejector;

scanning the ejector in first and second mutually opposed directions to induce the drops of liquefied material from the ejector to deposit and solidify in a predetermined sequence to sequentially form layers of the three-dimensional object;

supplying a viscous liquid into the vat to a level which is essentially level with the top of a most recently formed layer of the three-dimensional object; and

raising the level of the viscous liquid in accordance with the formation of new layers.

22. A method as set forth in claim 21, wherein the step of ejecting comprises ejecting drops of first and second materials and controlling the drops of the second material to form a predetermined portion of the layer with respect to a portion of the layer which is formed of the drops of the first material.

23. A method as set forth in claim 22, further comprising heating the second material so that it flows into recesses defined by the solidified drops of the first material.

24. A method as set forth in claim 22, further comprising heat treating the first and second materials and forming an alloy of the same.

25. A method as set forth in claim 21, wherein the viscous liquid is highly viscous at room temperature and is not detrimentally reactive with the liquefied material.

26. An apparatus for stereolithographic formation of a three-dimensional structure, comprising:

ejecting means for ejecting drops of liquefied material in a sequence wherein the drops solidify to form a three-dimensional object layer by layer; and

supply means for supplying a viscous liquid into a container in which the three-dimensional object is being formed in a manner which surrounds each layer of the three-dimensional object as it is formed with the viscous liquid, and

for controlling the level of the viscous liquid to be essentially level with the uppermost level of the portion of the layer formed from the drops of liquefied material.

27. An apparatus as set forth in claim 26, wherein the viscous liquid forms a surface on which drops of liquefied material can land and be supported in a manner which permits a portion of three-dimensional structure to formed and supported by the viscous liquid.

28. An apparatus as set forth in claim 26, wherein the ejecting means ejects at least first and second different types of liquefied material in a sequence selected to form a core of the first material and an outer layer of the second material.

29. An apparatus as set forth in claim 26, wherein the ejecting means comprises irradiation means for irradiating the drops of liquefied material with a timing selected to induce hardening of the material.

30. An apparatus as set forth in claim 26, wherein the viscous liquid is highly viscous at room temperature and is not detrimentally reactive with the liquefied material.